steamship *Tela*, in 33°10′ N., 78°08′ W., encountered a northeast gale of force 9, lowest barometer 29.75. Two hours later the wind at ship had diminished to force 6 from the northwest.

Between 6 and 7 a. m. (local time) the American steamer *Clare*, southbound, near 34°20′ N., 76°35′ to 76°40′ W., ran into northwest gales of force 9—extreme force 10. At 8:30 a. m. the ship, with little change in position, was evidently in the center of the cyclone, with lowest barometer 29.44, wind southeast, force 2.

At 7:30 a. m., E. S. T., the storm was centered a short distance southwest of Hatteras, continuing northeastward at a speed of about 20 miles an hour, which was almost two times its progressive rate on the 30th. During the forenoon its center passed very close to Hatteras, where the maximum wind velocity, from the northwest, was at the rate of 65 miles an hour, lowest barometer 29.53.

At 2 p. m., local time, of the 31st, the American steamer *Coppename*, Castilla to Boston, reported the lowest barometer, 29.40, observed in connection with the storm. This was in the approximate position 36°08′ N. 74°06′ W. The ship experienced heaviest wind at 4:30 p. m. with a gale from northwest, force 9, accompanied by squalls of greater intensity. The highest recorded wind force reported by any ship was 11, north-northwest, encountered on board the Dutch steamship *Medea*, at 3 p. m. (local time), lowest barometer 29.58, in 36°48′ N. 73°54′ W. The next highest, force 10, north-northeast, was experienced by the French steamer *Capitaine Paul Lemerle*, at local noon, in 36° N., 75° W., barometer 29.92 (uncorrected).

Other vessels that reported gale winds in the vicinity on the 31st were the American steamer *Peten*, northwest 9, lowest barometer 29.79, in 35°08′ N., 75°12′ W., at noon; the American motorship *Gulfpride*, north 8, lowest barometer 29.82, near 36° N., 75° W., at noon; the American steamship *Santa Lucia*, northwest 8, lowest barometer 29.56, in 36°30′ N. 73°42′ W., at 2 p. m.; the American steamer *Turrialba*, southwest 8–9, lowest barometer 29.64, near 38° N. 71° W., at 7 p. m.; and the British motorship *Wellfield*, southwest 9, barometer unrecorded, near 38° N. 68° W. The *Turrialba* and the *Wellfield* met diminishing gales which continued until 1 a. m. of August 1.

Thereafter, with abating intensity, the disturbance moved toward Nova Scotia, the coast of which it crossed late on August 1, and dissipated over the lower St. Lawrence Valley during the night of August 2–3.

The report of the forecaster, Mr. Dunn, at Jacksonville, said that, "except for some road washing at Clearwater and a slight fruit loss in Pinellas County, no damage resulted from the storm" in the Florida district.

As early as the character of the disturbance off the Florida west coast became known, storm warnings were issued at 5:30 p. m. of July 29 for the coast from Palmetto to Tarpon Springs. Thereafter, through the 31st, advisories or warnings were issued for the coast as far northward as the Virginia Capes.

TYPHOONS AND DEPRESSIONS OVER THE FAR EAST, JULY 1937

By Rev. BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

Typhoon, June 30–July 5, 1937.—A low-pressure trough extending from the Philippines to the Mariana Islands, June 27 and the following days, finally manifested itself as a depression, June 30, about 550 miles in a northerly direction from Yap. As it moved westerly, it intensified and became a typhoon, the morning of July 2, about 200 miles east by south of Aparri. Its course threatened the whole of northern Luzon, until late in the afternoon, when it shifted to the northwest, the center then passing a short distance north of Aparri and, a few hours later, a short distance south of Calayan. After crossing the central part of the Balintang Channel, it continued its northwest course across the northern part of the China Sea, losing its strength when it approached the coast line of China, filling up a short time after entering the continent.

The intensity of the typhoon is well indicated by the observations made at Calayan. A relative calm was experienced there from 9 a. m. to shortly before 11 a. m. The absolute minimum occurred at 8:45 a. m., when 718.85 millimeters (28.301 inches) was recorded, with southeast winds, force 8. At Aparri, a few hours before, 739.81 millimeters (29.127 inches) was recorded with west winds, force 8 (July 3, 4:02 a. m.).

According to reports, only one life was lost in the Philippines due to the typhoon, when a man was reported killed near Baguio. In the China Sea, however, a fishing vessel from Formosa was driven southward by the northerly winds of the typhoon and foundered near Cabugao (latitude 17°50′ N., longitude 120°25′ E.).

Three of the crew were drowned and the seven remaining members swam to shore. The only other marine casualty reported was the S. S. *Ronsan Maru*, which took shelter in Port San Vicente, near Aparri, and was driven ashore by the strong winds. She was refloated after the storm had passed and was not injured to any appreciable extent, according to the newspaper reports.

Typhoon, July 17–25, 1937.—Pressure values at Guam and Yap were quite low July 17 and 18, so much so that it was certain something was developing over those regions. No definite center appeared, however, until the morning of July 19, when, about 360 miles east of north of Samar, there appeared a depression. It apparently had formed during the preceding night and was moving in a west-northwest direction. It had developed into a typhoon the next morning as it was inclining to the northwest. The morning of July 21 found it located over the eastern part of the Balintang Channel, gradually inclining to the north. Late that afternoon, it was definitely moving northeast, but on the 22nd it shifted to the north, passing about 60 miles east of Naha and then less than 50 miles west of Oshima, moving in a northerly direction. On July 25 it was approaching Kiu-Siu Island, the western part of which was crossed the next day, moving north-northeast. The typhoon was in the Sea of Japan, July 27, moving north-northeast, as this article was being prepared.

When the typhoon was moving toward the archipelago, July 19 and 20, the S. S. *Steel Traveler* and the S. S. *Tjimonoek* sent observations which definitely indicated the intensity of the storm.

On the morning of July 20, the center was nearer to these two ships than on any other day. At 5 a. m. the S. S. *Tjimonoek* reported from latitude 12°48′ N., longitude 128°00′ E. a barometer of 752.4 millimeters (29.622 inches) with west-northwest winds, force 4. The S. S. *Steel Navigator* at 8 a. m. of the same day had, in latitude 13°42′ N., longitude 127°36′ E., north-northwest winds force 5, and a pressure of 754.1 millimeters (29.689 inches). Both ships reported rainy weather with squalls.

At this period, the typhoon was not fully developed. When it reached the Balintang Channel, the stations of Luzon did not have pressures below 750 millimeters (29.528 inches), but there was a definite circulation evident and it was certain that a center, perhaps small, existed in the Pacific east of the archipelago. When the

typhoon had definitely recurved, it manifested its energy over the Eastern Sea and neighboring regions. Oshima, at noon, July 23, reported pressure as low as 739 millimeters (29.094 inches), Kagoshima had a value of 740 millimeters (29.134 inches) at noon of July 25, and Nagasaki at the same time had a value of 739 millimeters (29.094 inches). The typhoon appeared to be weakening when it took its course through the Sea of Japan, July 26 and 27.

CLIMATOLOGICAL TABLES

CONDENSED CLIMATOLOGICAL SUMMARY

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

TABLE 1.— *Condensed climatological summary of temperature and precipitation by sections, July 1937*

[For description of tables and charts, see REVIEW, January, p. 29]

Section	Temperature								Precipitation					
			Monthly extremes								Greatest monthly		Least monthly	
	Section average	Departure from the normal	Station	Highest	Date	Station	Lowest	Date	Section average	Departure from the normal	Station	Amount	Station	Amount
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	80.0	−0.3	2 stations	101	[1] 15	2 stations	49	[1] 1	4.46	−0.90	Jackson Shoals	9.04	Fort Payne	0.80
Arizona	81.9	+.5	Quartzsite	121	[1] 2	Fort Defiance (near)	36	11	1.68	−.62	Nogales	5.60	Mesa Expt. Station	.10
Arkansas	80.4	−.1	Booneville	106	5	Wynne	52	1	3.71	−.09	St. Francis	9.77	Highland	.44
California	74.1	+.5	Cow Creek	124	3	Twin Lakes	27	[1] 18	.11	+.04	Ellery Lake	2.31	107 stations	.00
Colorado	69.7	+2.6	2 stations	109	[1] 22	Pearl	29	21	1.83	−.38	Leadville	8.70	Malachite Ranger Station.	.06
Florida	81.2	−.1	Blountstown	100	11	Mason (near)	60	24	6.92	−.29	Clearwater	22.31	Mason (near)	2.43
Georgia	79.8	−.3	3 stations	101	[1] 13	Blairsville	40	3	4.96	−.77	Quitman	12.92	Atlanta No. 2	1.00
Idaho	69.6	+1.5	Lapwai	111	24	2 stations	28	[1] 6	.97	+.31	Driggs	4.10	2 stations	T
Illinois	75.7	−.7	2 stations	100	[1] 10	Danville	43	1	3.18	−.07	Havana	10.95	Rockford	.05
Indiana	74.6	−1.1	4 stations	101	[1] 8	2 stations	40	1	3.67	+.35	Crawfordville	8.38	Salem	.82
Iowa	75.9	+1.3	Atlantic	107	7	4 stations	46	[1] 26	2.63	−1.03	Riverton (near)	8.35	Forest City	.13
Kansas	81.7	+2.7	2 stations	113	5	2 stations	52	[1] 2	3.14	−.06	Howard	14.86	Tribune	.54
Kentucky	75.6	−1.5	Bowling Green	102	[1] 15	Cutbank	41	2	3.04	−1.07	Glasgow	6.71	Irvington	.76
Louisiana	82.0	+.2	Minden	102	5	Tallulah	54	1	4.66	−1.48	Cheneyville	9.77	Burrwood	.59
Maryland-Delaware	74.9	−.3	Annapolis, Md	100	9	2 stations	39	28	3.82	−.40	Parkton, Md	7.29	Keedysville, Md	1.29
Michigan	70.1	+1.0	Baldwin	99	11	Vanderbilt	33	3	3.53	+.63	Monroe	8.46	Webber Dam	.78
Minnesota	72.3	+2.3	Beardsley	105	6	Meadowland	37	1	3.11	−.18	Baudette	12.50	Winona	.13
Mississippi	80.5	−.6	Aberdeen	102	17	Eupora	49	1	3.46	−1.56	Cleveland	6.89	Dlo	1.35
Missouri	77.9	−.1	Lamar	105	5	Greenville	45	1	4.06	+.37	Fisk	10.90	St. Louis	.67
Montana	69.8	+2.9	Medicine Lake	117	5	Birch Creek Camp	27	15	1.70	+.23	Scobey	4.90	Browning	.23
Nebraska	78.5	+3.4	North Loup	113	8	Gordon	43	25	2.70	−.45	Ewing	10.37	Bridgeport	.32
Nevada	75.3	+2.8	Logandale	118	4	San Jacinto	33	8	.67	+.29	McGill	3.03	4 stations	.00
New England	70.6	+1.5	Waterbury, Conn	102	9	Somerset, Vt	39	19	2.90	−.78	West Lebanon, N. H.	7.69	East Wareham, Mass.	.07
New Jersey	74.6	+.9	Charlotteburg	103	10	2 stations	43	2	2.83	−1.96	Long Valley	5.98	Camden	.58
New Mexico	73.2	+.9	Hagerman	108	30	Elizabethtown	32	22	1.46	−1.06	Corona	5.52	Loving	.00
New York	71.0	+1.3	West Point	102	8	Allegany State Park	38	2	3.19	−.70	North Lake	9.33	Waterloo	.59
North Carolina	76.7	−.3	Lumberton	104	10	Mount Mitchell	36	1	6.26	+.41	Beaufort	19.91	Monroe	1.91
North Dakota	71.7	+2.9	3 stations	111	5	2 stations	40	[1] 17	2.93	+.51	Grafton	9.48	Granville	.78
Ohio	73.2	−.5	Gallipolis (near)	102	9	Kenton (near)	41	1	4.27	+.48	Alliance	10.25	Chilo	1.53
Oklahoma	84.2	+2.5	2 stations	111	[1] 5	Hooker	51	10	2.01	−.85	Grove	7.31	Carnegie	.02
Oregon	67.3	+.8	do	106	[1] 4	Austin	20	8	.35	−.06	Spray	2.50	4 stations	.00
Pennsylvania	72.4	+.2	do	101	[1] 8	Somerset	37	28	4.47	+.19	Uniontown	8.69	Ansonia	.97
South Carolina	79.5	−.4	Walterboro	103	14	Long Creek (near)	45	2	5.09	−.72	Landrum	9.91	Calhoun Falls	.59
South Dakota	76.0	+3.0	Academy	112	6	Kennebec	45	15	2.83	+.37	Vale	9.27	Geddes	.36
Tennessee	76.9	−.8	Etowah	102	15	Crossville	42	1	4.24	−.21	Wildersville	7.55	Worsham	1.90
Texas	83.9	+.9	Clarendon	113	14	2 stations	55	[1] 6	1.98	−.65	Comanche	7.59	2 stations	.00
Utah	72.2	+.5	St. George	110	3	Thistle	36	3	1.89	+.96	Mount Baldy Ranger Station.	4.35	Leeds (near)	T
Virginia	74.5	−.9	4 stations	101	[1] 10	Mountain Lake	37	2	4.88	+.38	Martinsville	9.27	Radford	1.89
Washington	67.4	+1.1	Wahluke (near)	110	24	Stockdill Ranch	30	31	.38	−.28	Laurier	2.18	7 stations	.00
West Virginia	72.4	−.7	Martinsburg	101	16	Bayard	37	28	3.96	−.62	Richwood	7.96	Kearnysville	1.07
Wisconsin	72.2	+2.1	7 stations	101	[1] 7	Coddington	32	27	2.14	−1.38	Flambeau Reservoir	7.63	Mather	.03
Wyoming	66.9	+1.3	Chugwater	110	5	2 stations	30	[1] 15	2.86	+1.52	Ervay	7.87	Cody	.47
Alaska (June)	54.1	+1.6	Nenana	94	18	do	22	[1] 4	1.04	+.41	Cordova	15.77	3 stations	T
Hawaii	74.5	+.2	Kaanapali	94	[1] 12	Kanalohuluhulu	47	10	9.12	+2.95	Puosakamoa No. 2	52.00	do	.00
Puerto Rico	79.3	+1.0	Juana Diaz	100	2	Garzas	58	9	5.09	−1.15	Bayaney	12.67	Mona Island	.00

[1] Other dates also.